

Title (en)

Charged particle irradiation device and method of tuning the same

Title (de)

Bestrahlungsvorrichtung für geladene Teilchen und Verfahren für deren Anpassung

Title (fr)

Dispositif d'irradiation par particules chargées et procédé de réglage d'un tel dispositif

Publication

EP 2552545 A1 20130206 (EN)

Application

EP 11712822 A 20110330

Priority

- EP 10158873 A 20100331
- EP 2011054940 W 20110330
- EP 11712822 A 20110330

Abstract (en)

[origin: WO2011121037A1] A charged particle irradiation device (10) and method for irradiating a target volume (50), adapted for receiving a treatment plan (70) defining a series of prescribed irradiation points (140) having each a prescribed dose to be delivered, comprising an irradiation unit (40) having at least one scanning magnet (100; 110), and at least one beam position monitor (130) installed in between the said scanning magnet (100; 110) and said target volume (50). A controller (80) comprises means for calculating for any said prescribed irradiation point corresponding nominal magnetic settings of the scanning magnet such that a beam (90) is pointing to said prescribed irradiation point when corresponding magnetic settings are applied, and for calculating corresponding expected position at said beam position monitor (130). The controller (80) further comprises a) means for selecting a tuning reference point from said series of prescribed irradiation points; b) means for specifying a prescribed tuning dose to be given to said selected tuning reference point, said prescribed tuning dose being equal or smaller than the said prescribed dose at said selected tuning reference point; c) means for comparing a beam position provided by the beam position monitor (130) and the expected position at said beam position monitor (130) for said selected tuning reference point; d) means for computing a first correction to be applied to said nominal magnetic settings of the scanning magnet (100; 110) in order to align the beam position provided by the beam position monitor to the expected position at said beam position monitor (130) for said selected tuning reference point; e) means for correcting the nominal magnetic settings of the scanning magnet for all said prescribed irradiation points according to said first correction.

IPC 8 full level

A61N 5/10 (2006.01)

CPC (source: EP US)

A61N 5/00 (2013.01 - US); **A61N 5/1043** (2013.01 - EP US); **A61N 5/1048** (2013.01 - EP US); **A61N 5/1065** (2013.01 - EP US); **A61N 2005/1074** (2013.01 - EP US); **A61N 2005/1087** (2013.01 - EP US)

Citation (search report)

See references of WO 2011121037A1

Cited by

EP4309730A1

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)

WO 2011121037 A1 20111006; EP 2552545 A1 20130206; EP 2552545 B1 20150225; JP 2013523234 A 20130617; JP 5822167 B2 20151124; US 2013026388 A1 20130131; US 8541762 B2 20130924

DOCDB simple family (application)

EP 2011054940 W 20110330; EP 11712822 A 20110330; JP 2013501833 A 20110330; US 201113637096 A 20110330